REMARKS / DISCUSSION OF ISSUES

Claims 1-22 are pending in the application.

The Examiner is respectfully requested to state whether the drawings are acceptable.

Claims are amended for non-statutory reasons: to correct one or more informalities, remove figure label numbers, and/or to replace European-style claim phraseology with American-style claim language. The claims are not narrowed in scope and no new matter is added.

The Office action objects to claims 4 and 7, asserting that they are substantial duplicates of claim 3. The applicant respectfully traverses this objection.

Claim 3 claims determining whether a random number generator is not operating properly. Claim 4 claims reporting whether a random number generator is not operating properly. One of ordinary skill in the art will recognize that determining a condition (claim 3) is not equivalent to reporting a condition (claim 4). The determination of a condition can lead to a variety of subsequent actions, or no action; the subsequent actions may include reporting the condition, or not.

Claim 3 claims determining whether a random number generator is not operating properly. Claim 7 claims generating a new set of random sequences when the random number generator is not operating properly. One of ordinary skill in the art will recognize that determining a condition is not equivalent to performing an action based on that condition. The determination of a condition can lead to a variety of subsequent actions, or no action; the subsequent actions may include cessation of operation, restarting the system, or any of a variety of other actions, including, but not limited to, generating a new set of random sequences.

The Office action rejects claims 1-22 under the judicially created doctrine of obviousness-type double patenting over USP 6,675,113, hereinafter Hars2, USP 6,947,960, hereinafter Hars3. The applicant respectfully traverses these rejections.

The Examiner's attention is requested to MPEP 2142, wherein it is stated:

> "To establish a *prima facie* case of obviousness ... the prior art reference (or references when combined) ***must teach or suggest all the claim limitations***... If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness."

Each of the applicant's independent claims specifically includes the determination of an average number of bits that have a value of a predetermined logic value at a predefined range of intervals using an exponential averaging operation, and comparing the output of the exponential averaging operation to a predetermined acceptance range.

Neither Hars2 nor Hars3 teaches or suggests the determination of an average number of bits that have a value of a predetermined logic value at a predefined range of intervals using an exponential averaging operation, and comparing the output of the exponential averaging operation to a predetermined acceptance range, and the Office action fails to identify where either Hars2 or Hars3 provide this teaching.

The Office action erroneously asserts that the claims of Hars2 are generic claims that include the specific claims of this application. Hars2 claims the use of monobit-run frequencies to determine randomness. This applicant claims the use of an average of the number of occurrences of a logic value. One of ordinary skill in the art will recognize that an average of the number of occurrences of a logic value is substantially independent of the run-frequency of that logic value. An alternating sequence of a thousand 0s and 1s will produce an average of 50% zeros, and a run-length of 1. A sequence of a thousand 0s followed by a thousand 1s will produce the same average, 50%, but a substantially different run-length of 1000. A sequence of a thousand 0s followed by five hundred alternating 0s and 1s will produce this same run-length of 1000, but a substantially different average of 75%. Because different sequences can produce the same average and different run-lengths, or the same

run-lengths and different averages, one cannot assert that determining averages is a specific type of a generic run-length determination, as asserted in the Office action.

The Office action also erroneously asserts that the claims of this application are generic claims that include the specific claims of Hars 3. This applicant claims the use of an average number of occurrences of a logic value. Hars3 claims the use of an auto-correlation value relative to a shifted version of the original input. One of ordinary skill in the art will recognize that an average of the number of occurrences of a logic value is substantially independent of the repetitive nature of the sequence of logic values, as would be determined by an auto-correlation value.

Because neither Hars2 nor Hars3 teaches or suggests the limitations of the claims of this patent, and are neither generic nor specific embodiments of this invention, the applicant respectfully maintains that the rejections of claims 1-22 under the judicially created doctrine of obviousness-type double patenting over Hars2 and Hars3 are unfounded, per MPEP 2142.

The Office action rejects claims 1-14 and 19-22 under 35 U.S.C. 101. The applicant respectfully traverses this rejection.

The Office action asserts that a method whose steps can be practiced by pen and paper constitutes non-statutory subject matter. The applicant respectfully disagrees with this assertion, and notes that in Ex parte Lundgren, Appeal No. 2003-2088, heard 20 April 2004, the Board of Patent Appeals and Interferences concluded that "there is currently no judicially recognized separate 'technological arts' test to determine patent eligible subject matter under section 101."

MPEP 2106 specifically provides guidance for evaluating computer-related inventions:

> "Office personnel have the burden to establish a *prima facie* case that the claimed invention as a whole is directed to solely an abstract idea or to manipulation of abstract ideas or does not produce a useful result. ***Only when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected under 35 U.S.C. 101.*** Compare *Musgrave*, 431 F.2d at 893, 167 USPQ at 289; *In re Foster*, 438 F.2d 1011, 1013, 169 USPQ 99, 101 (CCPA 1971). Further, when such a rejection is made, Office personnel must expressly state how the

language of the claims has been interpreted to support the rejection. ...
As the Supreme Court has held, Congress chose the expansive language of 35 U.S.C. 101 so as to include "***anything under the sun that is made by man.***" *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09, 206 USPQ 193, 197 (1980). Accordingly, section 101 of title 35, United States Code, provides:
Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
In *Chakrabarty*, 447 U.S. at 308-309, 206 USPQ at 197, the court stated: In choosing such expansive terms as "manufacture" and "composition of matter," modified by the comprehensive "any," Congress plainly contemplated that the patent laws would be given wide scope. The relevant legislative history also supports a broad construction. The Patent Act of 1793, authored by Thomas Jefferson, defined statutory subject matter as "any new and useful art, machine, manufacture, or composition of matter, or any new or useful improvement [thereof]." Act of Feb. 21, 1793, ch. 11, § 1, 1 Stat. 318. The Act embodied Jefferson's philosophy that "ingenuity should receive a liberal encouragement." V Writings of Thomas Jefferson, at 75-76. See *Graham* v. *John Deere Co.*, 383 U.S. 1, 7-10 (148 USPQ 459, 462-464) (1966). Subsequent patent statutes in 1836, 1870, and 1874 employed this same broad language. In 1952, when the patent laws were recodified, Congress replaced the word "art" with "process," but otherwise left Jefferson's language intact. The Committee Reports accompanying the 1952 Act inform us that Congress intended statutory subject matter to "include anything under the sun that is made by man." S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H.R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952).
This perspective has been embraced by the Federal Circuit:
The plain and unambiguous meaning of section 101 is that ***any new and useful process***, machine, manufacture, or composition of matter, or any new and useful improvement thereof, ***may be patented*** if it meets the requirements for patentability set forth in Title 35, such as those found in sections 102, 103, and 112. The use of the expansive term "any" in section 101 represents Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in section 101 and the other parts of Title 35... Thus, **it is improper to read into section 101 limitations as to the subject matter that may be patented where the legislative history does not indicate that Congress clearly intended such limitations.** *Alappat*, 33 F.3d at 1542, 31 USPQ2d at 1556.

The applicant respectfully notes that the Supreme Court did not say "any thing under the sun that is made by man *that cannot also be done with pencil and paper*", as the Office action implies. The applicant also notes that MPEP 2106 states "Only when the claim is devoid of any limitation to a practical application in the technological arts should it be rejected".

The practical application of the claimed invention to the technical arts is presented in the Background of the Invention, and elsewhere throughout the specification. Determining whether a random number generator is producing truly non-predictable results, as taught and claimed by the applicant, has practical application in the technological arts, regardless of whether one chooses to perform the method using pen and paper, a calculator, or a super-computer.

The Office action rejects claims 6, 13, 17, and 21 under 35 U.S.C. 112, second paragraph. The applicant respectfully traverses this rejection.

The Office action asserts that these claims are indefinite because the Examiner views the equation as a linear function, and not an exponential function. The applicant respectfully notes that the application of the specified equation will produce a definite result, and thus the assertion that the claims are indefinite is unfounded, regardless of the Examiner's preferred characterization of the equation.

In the interest of advancing prosecution in the case, the applicant notes that the basis for using the term "exponential average" for the operation of this equation is provided at page 8 of the applicant's specification, and particularly at lines 15-17: "Note that the *expected value* of the exponential average is the exponential average of the expected values of the individual bits: $\frac{1}{2} + \frac{1}{2}\alpha + \frac{1}{2}\alpha^2 + \ldots = n / 2$."

Because the applicant provides a specific equation for determining a term that the applicant defines as an exponential average, the applicant respectfully maintains that the rejection of claims 6, 13, 17, and 21 under 35 U.S.C. 112, second paragraph as being indefinite is unfounded.

The Office action rejects claims 1-22 under 35 U.S.C. 102(b) over Keane (USP 5,873,781). The applicant respectfully traverses this rejection.

The Examiner's attention is requested to MPEP 2131, wherein it is stated:

> "A claim is anticipated only if ***each and every element*** as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The ***identical invention*** must be shown in as ***complete detail*** as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The Office action asserts that Keane teaches "determining an average number of bits that have a value of a predetermined logic value at a specific, predefined range of intervals" at column 11, lines 11-16. The cited text follows:

> "In another embodiment, a gaming machine according to the present invention selects a reel stop position based upon a nonuniform probability distribution by initially generating two random numbers based upon uniform probability distributions. The gaming machine utilizes two predefined arrays for each reel as shown, e.g., in FIG. 3."

As is clearly evident, Keane does not teach determining an average number of bits that have a value of a predetermined logic value at a predefined range of intervals at column 11, lines 11-16, as asserted by the Office action.

The Office action further asserts that Keane teaches "applying each of the average number of bits indicative of said predetermined logic value to an exponential averaging operation" at column 11, lines 25-32. The Office action also asserts that Keane teaches "determining whether said generated random numbers are unpredictable by comparing the output of said exponential averaging operation (A) to a predetermined acceptance range" at this same paragraph. The cited text follows:

> "In the example of FIG. 3, the main array entry for each reel stop position is an integer between 0 and 255. A larger or smaller range can be used depending on the required resolution of the nonuniform probability distribution. The alias array entry for each reel stop position is an integer corresponding to one of the possible reel stop positions. The example in FIG. 3 depicts a relatively simple probability distribution."

As is again clearly evident, Keane does not teach applying each of the average number of bits indicative of said predetermined logic value to an exponential averaging operation at column 11, lines 25-32, as asserted by the Office action. It is

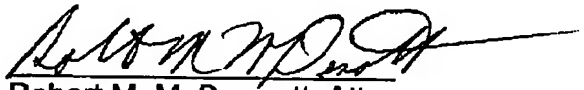
also clearly evident that Keane does not teach determining whether said generated random numbers are unpredictable by comparing the output of said exponential averaging operation to a predetermined acceptance range this same cite, as also asserted by the Office action.

The Office action includes other cites to Keane that are similarly irrelevant to the applicant's claims, which the applicant can provide if the above remarks are not deemed persuasive to overcome this rejection.

Because Keane fails to teach each of the elements of each of the applicant's independent claims, the applicant respectfully maintains that the rejection of claim 1-22 under 35 U.S.C. 102(b) over Keane is unfounded, per MPEP 2131.

In view of the foregoing, the applicant respectfully requests that the Examiner withdraw the rejections of record, allow all the pending claims, and find the application to be in condition for allowance. If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,



Robert M. McDermott, Attorney
Registration Number 41,508
patents@lawyer.com

1824 Federal Farm Road
Montross, VA 22520
Phone: 804-493-0707
Fax: 215-243-7525